The Pacific Northwest continued very dry. There was some heavy frost reported in middle Atlantic sections, but no material harm occurred.

In contrast to the preceding weather, that during the last decade brought rather general frost over much of the interior of the country, with light deposits in exposed places as far south as the northern portions of Louisiana and Florida. Tender vegetation was frosted and some cotton tops were nipped in parts of the western belt, but crops were so far advanced that there was only slight injury. It was also less favorable for field work in much of the interior, but in the Southwest and middle Gulf sections rainfall was beneficial; drought was still unrelieved at the close of the month in the interior of the Pacific Northwest.

Small grains.—During the first decade early-sown winter wheat did well in the Southwest, but it was too dry for much plowing or planting. Seeding was well advanced in most of the Great Plains, but the soil had just become moist enough for this work in Missouri. In parts of the Ohio Valley it was too dry for planting, but in other areas this work was well along, with the early crop up to good stands locally. The weather favored plowing and planting in the northern Great Plains and the Northwest, but the interior of the Pacific Northwest continued very dry, with moisture needed to condition the soil. During the second decade there were beneficial rains in the southwestern belt, extending into Missouri, but parts of this area were still dry; elsewhere conditions were favorable for the winter-wheat crop. During the last decade there was a continuation of favorable conditions and the general advance of the crop was good to excellent, with ample soil moisture. The Pacific Northwest continued seriously dry and seeding was delayed, with the early sown uneven and much in need of reseeding.

Corn.—The favorable mild, open weather during the month permitted late corn to mature in good shape. In some interior sections, especially in Missouri, extreme southern Iowa, and the southern half of Illinois, much corn had been in precarious condition, because of the possibility of harm from frost, but the bulk matured satisfactorily and at the close of the month the crop was practically all safe. There was some delay to husking and picking by rain, but this work, in general, advanced rapidly, with unusually favorable weather for the use of husking machines in Iowa during the last decade.

Cotton.—During the first decade there was some interruption by rain to cotton picking and ginning in Arkansas, but generally good progress was made in this work. Bolls opened fast in Oklahoma, while in western Texas the warm weather favored maturity of late bolls. In central parts of the belt there was fair advance made in gathering the crop, but in eastern sections excessive rainfall, with consequent flooding of bottom lands, was decidedly unfavorable and there were many reports of rotting bolls and damaged staple. There were heavy rains in the northwestern belt during the second decade, with interruption to picking and some damage, but the latter part was favorable and gathering continued, although largely completed in Texas, except in the west and northwest. Fair weather in the southeast favored drying, but in the northeastern belt there were some further heavy rains. During the last decade there was some injury to cotton tops by frost in the western belt, with growth generally stopped in the northwest, but no widespread damage, and the frost promoted rapid opening of bolls. In Oklahoma picking was further advanced than in an average year and this work was completed in much of Arkansas.

Miscellaneous crops.—Pastures and meadows were in fair to good condition in most sections east of the Rocky Mountains and ranges were good and affording some feed in the northern Great Plains. Rain or snow was beneficial in the Northwest, while generally good condition was reported from the Southwest. The unfavorably dry conditions in the far western States caused a shortage of range feed and stock water. Livestock were largely on winter ranges at the close of the month.

Potato digging was mostly completed at the close of the month and, while there was some injury to truck reported, condition of this crop was good, although growth was confined mainly to the winter producing areas. Sugar beet digging was largely favored, as were cane grinding and cutting. Citrus continued in generally satisfactory condition.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

NORTH ATLANTIC OCEAN

By F. A. YOUNG

Judging from the number of days in which gales were reported, the weather during the month would not be considered severe over the ocean as a whole, except in the vicinity of the coast of southern Europe where the number of gales was somewhat above the normal. There were, however, a number of unusual features that will be referred to later. These include the anticyclonic gales on the 11th, the severe disturbance in southern waters on the 21st and 22d, and the disturbances of tropical origin in the first and last decades of the month.

Fog was reported on from 10 to 13 days over the Grand Banks; on from 4 to 6 days along the American coast, and on from 1 to 6 days over the steamer lanes, while the coast of Europe was comparatively clear.

Charts VIII and IX show the conditions on the 1st and 2d, respectively, and used in connection with Charts VIII to XV for September give an idea of the track and extent of the tropical distrubance that was first reported on September 22, while Chart VIII for that month gives its position on the 23d. On October 3 the center of this disturbance was near Albany, N. Y., and on the 4th near Father Point, Quebec, where a barometric reading of 29.32 inches was reported. At Belle Isle on that date, the morning observation gave the wind as east, force 9, barometer 29.52 inches. Vessels between the fortieth parallel and Newfoundland encountered southerly to southwesterly winds of force 5 to 8. By the 5th this LOW had apparently begun to fill in, the barometer at Belle Isle on that day reading 29.66 inches, while moderate westerly gales continued between the fortieth and forty-fifth parallels, west of the sixtieth meridian.

On the 5th a depression was over Ireland, afterwards developing into a severe disturbance, and from that date until the 8th moderate to strong gales were prevalent over the eastern section of the steamer lanes, the storm area on the 7th extending as far west as the thirty-fifth meridian.

On the 10th and 11th very unusual conditions existed over the western section of the ocean. There was a pronounced HIGH over the eastern United States, with crest near New York City, and practically normal pressure over the Caribbean Sea. The 8 a. m. barometer reading

at New York was 30.72 inches on the 10th and 30.68 inches on the 11th, and the remarkably steep gradient resulted in moderate to strong northeasterly gales along the coast from Key West to Hatteras, accompanied by comparatively high barometric readings. A number of press accounts of this storm have been received and the consensus of opinion of different shipmasters and officers was that the conditions were most unusual, as an increasing wind on a rising barometer is not often experienced. Capt. Chester W. Gilbert of the American steamship *Venezuela* was quoted as having stated that he had only seen one other storm of this character in his whole career at sea.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (seventy-fifth meridian). North Atlantic Ocean October, 1929.*

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	*Inches*
Belle Isle, Newfoundland	29.81	[1] −0.06	30.36	31st	28.82	29th.
Halifax, Nova Scotia	30.01	[2] −0.03	30.58	30th	29.28	17th.
Nantucket	30.03	[2] −0.05	30.60	10th	29.36	17th.
Hatteras	30.06	[2] −0.04	30.52	10th [3]	29.50	2d.
Key West	29.95	[2] −0.01	30.08	26th	29.70	21st.
New Orleans	30.04	[2] −0.02	30.22	24th	29.72	28th.
Cape Gracias, Nicaragua	29.84	[1] −0.08	29.92	27th	29.76	18th.
Turks Island	29.99	[2] +0.04	30.08	5th [3]	29.90	30th.
Bermuda	30.07	[2] 0.00	30.30	31st	29.76	16th.
Horta, Azores	30.27	[1] +0.14	30.44	10th [3]	29.92	24th.
Lerwick, Shetland Islands	29.47	[1] −0.32	30.33	31st	28.72	2d.
Valencia, Ireland	29.86	[1] −0.05	30.39	31st	29.20	5th. [3]
London	29.84	[1] −0.07	30.38	31st	29.13	6th.

[1] From normals shown on Hydrographic Office Pilot Chart, based on observations at Greenwich mean noon, or 7 a. m. seventy-fifth meridian time.
[2] From normals based on 8 a. m. observations.
[3] And on other date.

Results for Julianehaab, Greenland, are not given, as observations were missing from that station on 7 days.

From the 11th to 14th a depression over the central section of the ocean was responsible for moderate to strong gales during the greater part of that period, and on the 13th and 14th winds of force 7 to 10 were reported from the area between the fortieth and fiftieth parallels and the thirtieth and fiftieth meridians.

On the 15th anticyclonic northerly winds of gale force were encountered by vessels between the thirtieth and thirty-sixth parallels and the thirty-fifth and forty-second meridians, accompanied by barometric readings of from 30.11 to 30.20 inches.

On the 16th and 17th a LOW was off the American coast between Nantucket and Belle Isle, with moderate to strong gales prevailing on both days.

From the 19th to the 22d the region between the Bermudas and Azores was swept by a severe disturbance, the wind reaching hurricane force at times. Charts X and XI show the conditions on the 21st and 22d, respectively. On the 21st and 22d there was also a disturbance of tropical origin off the American coast between the twenty-fifth and thirty-fifth parallels.

From the 23d to 27th westerly to southwesterly gales were encountered by vessels in the middle and eastern sections of the steamer lanes.

On the 28th one LOW was central near Cape Ray, Newfoundland, and a second near 58° N., 28° W.; these both developed into severe disturbances as they moved slowly eastward, and on the 29th gales of force 8 to 11 were encountered between Halifax and Belle Isle, west of the forty-fifth meridian, and on the same day winds of force 8 and 9 prevailed between the twentieth meridian and British coast. On the 30th there was an extensive storm area over the middle section of the ocean, while by the 31st moderate weather prevailed generally.

OCEAN GALES AND STORMS, OCTOBER, 1929

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN			° ′	° ′				*Inches*					
Naperian, Br. S. S.	Savannah	Liverpool	32 10 N.	80 05 W.	Oct. 1	10 a., 1	Oct. 3	29.54	SE.	SE., 8	SW.	—, 8	SSE.-SW.
Balsam, Am. S. S.	New York	Glasgow	55 27 N.	7 45 W.	1	11 p., 1	2	29.08	S.	SW., 7	W.	S., 10	S.-W.
New York, Am. S. S.	Port Arthur	New York	33 38 N.	76 15 W.	2	1 a., 2	3	29.61	SE.	SSE., 8	W.	SW., 9	
Helen, Am. S. S.	San Juan	Philadelphia	36 50 N.	74 17 W.	3	8 a., 3	3	29.61	W.	W., 10	NW.	W., 10	NW.-W.
New York City, Br. S. S.	Bristol	do	44 00 N.	63 00 W.	4	6 a., 4	4	29.48	SW.	SW., —	SW.	—, 9	Steady.
West Hobomac, Am. S. S.	Newcastle	New Orleans	48 51 N.	7 16 W.	5	5 p., 5	5	29.30	WSW.	NW., 8	NW.	NNW., 10	SW.-NW.
Tuscaloosa City, Am. S. S.	Canal Zone	Liverpool	50 16 N.	11 31 W.	5	4 a., 6	6	29.45	NW.	NW., 10	NW.	NW., 11	NW.-WNW.
Coldwater, Am. S. S.	Savannah	Bremen	49 18 N.	17 15 W.	5	8 p., 7	9	29.22	SE.	W., 9	NW.	—, 9	SSW.-NNE.
Winnebago, Br. S. S.	Brixham	New York	48 04 N.	42 20 W.	8	Noon, 9	9	29.81	SSW.	SW., 9	W.	SW., 9	SW.-W.
Wm. G. Warden, Am. S. S.	Corpus Christi.	do	26 53 N.	79 43 W.	10	—, 10	12	30.06	NE.	NE., 9	E.	ENE., 9	NE.-E.
McKeesport, Am. S. S.	Havre	do	51 03 N.	32 23 W.	10	5 p., 11	11	29.64	SW.	SSW., 8	SSW.	SW., 9	SW.-SSW.
Tynefield, Br. M. S.	Belfast	Baton Rouge	42 12 N.	47 37 W.	9	8 p., 12	14	29.77	NE.	NNE., 6	N.	NE., 10	NNE.-NE.
Milwaukee, Ger. M. S.	Cobh	New York	49 10 N.	31 40 W.	14	8 a., 14	14	29.73	NNW.	NNW., 10	W.	—, 10	NNW.-W.
Excelsior, Am. S. S.	Marseille	Boston	42 38 N.	63 10 W.	16	7 a., 16	16	29.45	SE.	SE., 10	W.	SE., 10	SE.-W.-NW.
Inverglass, Br. S. S.	Las Piedras	Southampton	30 55 N.	46 31 W.	17	Mdt., 17	18	29.74	N.	WSW., —	SSE.	WSW., 9	
Exton, Am. S. S.	New York	Genoa	39 56 N.	73 55 W.	20	9 a., 20	24	29.98	NE.	NE., 7	NE.	S., 10	S.-NE.
Liberty Glo, Am. S. S.	Bremen	Jacksonville	48 48 N.	7 30 W.	20	2 p., 20	21	29.49	WNW.	NW., —	—	N., 9	WNW.-NNW.
Momus, Am. S. S.	New York	New Orleans	31 20 N.	76 50 W.	21	2 p., 21	21	29.67	ESE.	SE., 9	SE.	SE., 10	Steady.
Magmeric, Am. S. S.	Antwerp	Charleston	36 00 N.	46 00 W.	21	7 p., 21	21	29.43	SE.	SE., —	W.	—, 11	
Deer Lodge, Am. S. S.	English Channel.	Gulf of Mexico	35 06 N	43 41 W.	21	4 p., 21	21	29.72	ESE.	SSE., 9	SSW.	S., 12	
Steel Seafarer, Am. S. S.	Port Said	New York	36 30 N.	1 40 W.	20	11 p., 21	22	29.55	WSW.	SW., 8	W.	SW., 9	SW.-W.
San Gil, Br. S. S.	St. John, N.B.	Habana	32 17 N.	75 30 W.	21	3 a., 22	22	29.55	SE.	SE., 10	W.	SE., 10	Steady.
Wieldrecht, Du. S. S.	Antwerp	New Orleans	46 13 N.	12 43 W.	25	11 p., 25	26	29.88	NNW.	NNW., 10	NW.	NNW., 10	
Tuscaloosa City, Am. S. S.	London	Baltimore	48 34 N.	44 07 W.	20	3 p., 26	30	29.37	NNW.	S., 10	N.	WNW., 10	SSW.-S.
West Alseek, Am. S. S.	Avonmouth	New York	50 45 N.	16 05 W.	28	2 p., 28	29	29.62	WSW.	W., 8	NW.	WNW., 10	WSW.-WNW.
President Roosevelt	United Kingdom.	do	47 45 N.	40 30 W.	29	6 p., 29	30	29.59	SSW.	WSW., 8	WNW.	WSW., 9	SSW.-WSW.